THE TRUE POSITION OF BRUGIÈRE'S BULIMUS CARINATUS

BY CALVIN GOODRICH

Conrad[1] appears to have been the first author to attach the generic name *Anculotus* (restored to *Anculosa* soon after) to a member of the group of *Anculosa carinata* (Bruguière). Say considered his *dissimilis* to be a *Paludina* and his *trilineata* a *Melania*. Beginning with Lea's *Anculosa carinata,* April, 1841, which is identical with Bruguière's species, all newly described members of the group were made *Anculosa, Anculotus* or *Leptoxis.*

In studying the dentition of the Pleurocerids I have found that, in most instances, the radulae are exceedingly alike. There is, indeed, no striking differences between the radulae of such genera as *Goniobasis* and *Lithasia* and those of Japanese species of *Melanoides*—the only foreign Melanians specimens of which I have been fortunate enough to find soft parts. But in *Anculosa* and the closely allied *Eurycaelon* the lateral teeth have an individuality that distinguishes them clearly from the laterals of other genera. These are characterized by a broad, cleaver-like fold or reflection, none to three denticles and a comparatively short peduncle. There is nothing elsewhere among the *Pleuroceridae* quite similar. This was shown by Troschel, whose figures were reproduced by Tryon,[2] but it has apparently attracted no attention. I have examined twenty-four radulae of *A. praerosa* from seven fairly wide-spread localities, eighteen of *subglobosa* from four localities, seven of *umbilicata* from two localities and two of *griffithiana* from one locality. The centrals varied from 2+1+2 to 6+1+6, with considerable variation within each radula. The extreme number of denticles of the inner marginal teeth were six. The cusps of the outer marginals were from ten to fourteen. In all of them, the lateral teeth were alike when in place in the ribbons.

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[1] New Fresh Water Shells of the United States, 1834, pp. 61, 64; pl. 8, figs. 16 and 17.

[2] American Journal of Conchology, 11, 1866, p. 134.

In the case of *carinata,* the large fold of the lateral teeth is much smaller than that of *Anculosa.* It is oblong or nearly square in shape. The denticles associated with it are relatively large and number from one to four. The peduncle is longer and more slender than in *Anculosa.* The radula as a whole is shorter. Sixteen radulae of *carinata* were examined, four of *dilatata,* three of *virgata,* one of *ornata* and one of *trilineata.* Radulae of no other species of the group were available for study. Centrals in *carinata* were found to be from 2+1+4 to 5+1+5. Those in *dilatata* were 3+1+3, which seems to be the conventional arrangement in most Pleurocerids. In *ornata,* the centrals were 3+1+2 to 3+1+4; in *virgata* 2+1+4 to 5+1+5; in *trilineata* 2+1+2 to 4+1+4. The inner marginals of *carinata* and *dilatata* have six denticles, occasional teeth having eight. As this dimorphism—if it is this and not a matter of difference in age—is characteristic of the forms of *Lithasia obovata* (Say) there is a hint here perhaps of close relationship. The inner marginals of *virgata, ornata* and *trilineata* have six cusps. The outer marginals of the radulae of all these species vary in having ten cusps as in *dilatata* to as many as sixteen that were counted in *trilineata.*

In 1921,[3] I made two groups of these mollusks. In the light of material taken since then and examined, I am sure there is only one natural group of them. Also some species were recognized in 1921 that properly belong to the synonymy. For example, shells that were collected by Dr. A. E. Ortmann made it plain that *corpulenta* Anthony was merely a stout form occurring within colonies of typical *carinata.* The same thing can be reported for *canalifera* Haldeman. Smooth or multicarinate, each form has the same kind of radula. *Costata* Anthony has proved to occur on the same stones or reefs with *trilineata* at the type locality of the latter. Connecting links between them were plentiful. Possibly a long series of *arkansasensis* Hinkley might confirm the integrity of this species, but specimens that were sent to me by Hink-

[3] Nautilus, XXXV, 1921, pp. 9, 10.

ley cannot be differentiated from *trilineata* of the Ohio River without straining of imagination.

On the third page of the cover of Number 3 of "A Monograph of the Limniades or Freshwater Univalve Shells," July, 1841, Haldeman wrote down *Mudalia* as a subgenus for his *Anculosa affinis*. In the way of description for the species he gave only these few words: "I propose this name for a shell allied to 'Paludina dissimilis,' Say, but which differs from it in having a slight tooth upon the columella. Hab. Ohio, Mrs. Say." Tryon considered the diagnosis insufficient, and the figure he gives of the shell looks like *Lithasia obovata* (Say). Ohio, of course, would be outside the territory of anything closely resembling *dissimilis*, though all right for *obovata*. *Mudalia*, therefore, seems to be unavailable as a generic name for the *carinata* group. The next name proposed was *Nitocris* H. & A. Adams, "The Genera of Recent Mollusca," part XXV, March, 1856, p. 308. Of the twelve species listed under *Nitocris* by these authors, only one, *ebena* Lea, does not belong in this place.

A REDEFINITION OF POLYGYRA ALBOLABRIS MAJOR

BY ALLAN F. ARCHER

Polygyra albolabris major (Binn.) is a form the identity of which is still hazy in the minds of many conchologists. The usual conception of this form is that it is a large variety of *Polygryra albolabris* (Say). An examination of a large series of specimens in the collection of the Museum of Comparative Zoology, Cambridge, Mass., shows that size should not be a test in defining this form. Some very large specimens of *P. albolabris* have been collected in eastern Tennessee and southeastern Kentucky and have been considered by several writers to be *P. albolabris major*. In the Proceedings of the Academy of Natural Sciences of Philadelphia, 1900, p. 120, Dr. Pilsbry in his article on the Mollusca of the Great Smoky Mountains expresses some doubt as to whether the large forms of eastern Tennessee can be rightly considered